1 R **MISCELLANEOUS**
1 N .Noise abatement
1 A .Lightning arresters and static eliminators
1 TD .Trailing devices
2 **COMPOSITE AIRCRAFT**
3 .Trains
3.1 **MISSILE STABILIZATION OR TRAJECTORY CONTROL**
3.11 .Remote control
3.12 ..Trailing wire
3.13 ..Beam rider
3.14 ..Radio wave
3.15 .Automatic guidance
3.16 ..Optical (includes infrared)
3.17 ...Optical correlation
3.18 ...Celestial navigation
3.19 ..Radio wave
3.2 ..Inertial
3.21 ..Attitude control mechanisms
3.22 ...Fluid reaction type
3.23 .Stabilized by rotation
3.24 .Externally mounted stabilizing appendage (e.g., fin)
3.25 ..Removable
3.26 ..Sliding
3.27 ..Collapsible
3.28 ...Longitudinally rotating
3.29 ...Radially rotating
3.3 ..Extending beyond rear of missile
158.1 **SPACECRAFT**
158.2 .Tethered
158.3 .Inflated
158.4 .Spacecraft formation, orbit, or interplanetary path
158.5 ..Orbit insertion
158.6 ..Orbital control
158.7 ...Aerobraking
158.8 ...Automatic
158.9 .Reusable or returnable
159.1 ..With reentry shield
159.2 ...Inflatable
159.3 ..Having aerodynamic lifting body (e.g., Space Shuttle)
159.4 .Modular and assembled in space
159.5 ..Foldable
159.6 ..Including use of launch vehicle part
164 .Attitude control
165 ..By gyroscope or flywheel
166 ..By magnetic effect
167 ..By gravity gradient
168 ..By solar pressure
169 ..By jet motor
170 ..By nutation damper
171 ..With attitude sensor means
171.1 .With propulsion
171.2 ..Steerable mount
171.3 ..Launch from surface to orbit
171.4 ...Horizontal launch
171.5 ..Without mass expulsion
171.6 .Having launch pad cooperating structure
171.7 .With shield or other protective means (e.g., meteorite shield, insulation, radiation/plasma shield)
171.8 ..Active thermal control
171.9 .With special crew accommodations
172.1 ..Emergency rescue means (e.g., escape pod)
172.2 .With fuel system details
172.3 ..Fuel tank arrangement
172.4 .Rendezvous or docking
172.5 ..Including satellite servicing
172.6 .With deployable appendage
172.7 .With solar panel
172.8 ..Having solar concentrator
172.9 ..Having launch hold down means
173.1 .With payload accommodation
173.2 ..Including vibration control
173.3 ..And payload deployment
4 R **AIRCRAFT, HEAVIER-THAN-AIR**
5 .Airplanes, weight diminished by bouyant gas
6 .Airplane and helicopter sustained
7 R ..Convertible
7 A ...Rotary wing
7 B ...Tail sitters
7 C ...Tilting wing
8 .Airplane and auto-rotating wing sustained
9 .Airplane and paddle wheel sustained
10 .Airplane and cylindrical rotor sustained
11 .Airplane and beating wing sustained
12.1 .Airplane and fluid sustained
12.2 ..Circular
12.3 ..Dual propulsion
12.4 ..Thrust tilting
12.5 ..With thrust diverting
12.6 ..Channel wing

13 .Airplane sustained
14 ..Aerial torpedoes
15 ..Fluid propelled
16 ..Glider
17.11 .Helicopter or auto-rotating wing sustained, i.e., gyroplanes
17.13 ..Automatic or condition responsive control
17.15 ..With safety lowering device
17.17 ..With landing, mooring, or nonaerial propelling or steering gear
17.19 ..With auxiliary propulsion, counter-troque or steering device
17.21 ...Auxiliary rotor
17.23 ..Having plural lifting rotors
17.25 ..Lifting rotor having lift direction varying means
17.27 ..Lifting rotor supports, e.g., pylons
19 .Paddle wheel sustained
20 ..Feathering
21 .Cylindrical rotor sustained
22 .Beating wing sustained
23 R .Fluid sustained
23 A ..Lifting thrusters
23 B ..Dual propulsion means, horizontal and vertical
23 C ..Circular configuration
23 D ..Thrust diverters
4 A .Body attached
24 **AIRCRAFT, LIGHTER-THAN-AIR**
25 .Airships with sustaining wings
26 .Airship and helicopter sustained
27 .Airship and paddle wheel sustained
28 .Airship and beating wing sustained
29 .Airship and fluid sustained
30 .Airships
31 .Balloons
32 ..With parachutes
33 ..Captive
34 R **AIRCRAFT SUSTENTATION**
35 R .Sustaining airfoils
36 ..Lifting fuselages
37 ..Lifting struts
38 ..Resiliently mounted
39 ..Rotatable
198 ..With lift modification
199.1 ...By vortex control outside of boundary layer
199.2 ....Of tip vortex
199.3 .....Active
199.4 .....Wing tip foils/fences
200 ...By characteristic of airfoil's skin
200.1 ....Vortex generation in boundary layer
201 ...Variable
202 ....With landing gear
203 ....Condition responsive
204 ....By controlling boundary layer
204.1 .....Actively controlled vortex generator
205 .....With ionic or electrostatic surface
206 .....With rotating member
207 .....With blowing
208 ......And suction
209 .....With suction
210 .....With nose slot
211 ......Having trailing edge flap
212 .....Having trailing edge flap
213 ....By flap and/or spoiler
214 .....At leading edge
215 .....At trailing edge
216 ......Variable gap type, e.g., "Fowler Flap"
217 ......Plural, relatively pivotable
218 ....Area
219 ....Camber
45 R ..Arrangement
46 ...Variable
47 ....Dihedral
48 ....Incidence
49 ....Folding
45 A ...Canard
35 A ..Compressible flow
34 A .Annular airfoils
50 **AIRCRAFT PROPULSION AND STEERING ON LAND OR WATER**
51 **AIRCRAFT, STEERING PROPULSION**
52 .Fluid
53 R **AIRCRAFT POWER PLANTS**
54 .Mounting
55 .Arrangement
56 ..Tilting
57 .Radiator arrangement
58 .Auxiliary
59 .High altitude
60 .Transmission of power
61 .Power plant using airship gas as fuel

53 A .Starters
53 B .Air intakes
62 **AIRCRAFT PROPULSION**
63 .Launching
64 .Manual
65 .Screw
66 ..Tilting
67 ..Body encircling
68 ..Elongated
69 ..Contra-propeller arrangements
70 .Paddle wheel
71 .Reciprocating propeller
72 .Beating wing
73 R .Fluid
74 ..Explosive jet
73 B ..Vacuum induced by radial flow
73 C ..Radial outward and downward flow
75.1 **AIRCRAFT CONTROL**
76 R .Automatic
174 ..Flutter control
175 ..Electric course control
177 ...Multiple-axis altitude stabilization
178 ....Trim control
179 ....By change in bank
180 ...By change in altitude
181 ....By change in pitch, angle of attack or flight path
182 ....By change in speed
183 ...Of aircraft on its landing course
184 ....By steering or yaw
185 .....And vertical glide path control
186 ....Vertical glide path control
187 .....With "flare-out" detection
188 .....Slope control by throttle
189 ...By remote radio signal
190 ....Of pilotless aircraft
191 ...Acceleration control
192 ...With "dead-zone" control
193 ...With "softener" circuit
194 ...Monitoring circuit or response
195 ....Self-adaptive control
196 ...Override of automatic control by human pilot
197 ....By engaging manual control system
78.1 ..Fluid
78.2 ...Fluid amplifiers
79 ..Gyroscope actuated
80 ..Gravity actuated
81 ..Operated by landing
82 ..Vane operated
76 A ..Motor torque control of flaps or tabs
76 B ..Velocity operated devices
76 C ..Gust compensators
76 J ..Steerable jets
220 .Pilot operated
221 ..Control system
222 ...Other than hand or foot actuated
223 ...With feel
224 ...With locking means
225 ...With dual purpose surface structure (e.g., elevons)
226 ...Fluid
227 ....With electric control
228 ...Electric
229 ...Dual
230 ...With variable output
231 ...With interengaging gearing
232 ...With cable and linkage
233 ...Cable
234 ..Controller
235 ...Rudder bar and pedal
236 ...Electrical pickup
237 ...Three-way steering, single control
87 .Rudders and empennage
88 ..Rudders universally mounted
89 ..Elevators both front and rear
90 R ..Ailerons and other roll control devices
90 A ...Roll control spoilers
90 B ...Balanced air pressure
91 .Vertical fins
92 .Stabilizing propellers
93 .Stabilizing weights
94 ..Ballast storage and release
95 ..Ballast making
96 .Airship control
97 ..Buoyancy varying
98 ..Gas bag inflation
99 ..Gas release
99.1 .Fuselage
99.11 .Wing
99.12 .Drag
99.13 .Flutter control
99.14 .Trim tab
99.2 .Specific control connection or actuator
99.3 ..Linkage
99.4 ..Redundant arrangements
99.5 ..Fluid

99.6 ...Fluid pressure source arrangement
99.7 ...Nonlinear fluid actuator
99.8 ..Actively deformable material (e.g., piezoelectric, shape memory, magnetostrictive, electrostrictive)
99.9 ..Failure tolerant (e.g., jam tolerant, no-back control connection)
100 R **LANDING GEAR**
101 .Amphibian
102 R .Retractable
102 A ..Interconnected elements
102 SL ..Strut locks
102 SS ..Strut shortening
103 R .Wheel
104 R ..Resiliently mounted
104 CS ...Coil spring
104 FP ...Fluid pressure
104 LS ...Leaf spring
103 S ..Prerotation
103 W ..Crosswind gear
105 .Water landing
106 ..Flying boat
107 ..Emergency
108 .Skids
109 .Tail supports
100 C .Endless track
100 A .Inflatable
110 R **RETARDING AND RESTRAINING DEVICES**
111 .Wheel brake arrangement
112 .Water brake arrangement
113 .Aerodynamic retarders
110 A .Brake
110 B .Thrust reversers
110 C .Cable or net support
110 D .Aerodynamic braking
110 E .Landing platforms
110 F .Snares
110 G .Arresting hoods
110 H .Friction brakes
114 R **LANDING FIELD ARRANGEMENT**
115 .Mooring devices
116 ..Movable
114 B .Blast deflectors
117 R **AIRCRAFT STRUCTURE**
118.1 .Load (e.g., cargo) accommodation
118.2 ..Removable, load bearing, airframe section
118.5 .Passenger or crew accommodation
118.6 ..Seating arrangement: berth or berthage
119 .Fuselage and body construction
120 ..Sectional
121 ..Shields and other protective devices
122 R ..Seats and safety belts
122 A ...Ejection seats
122 AB ....Catapult and rocket combined
122 AC .....Catapult
122 AD .....Rocket
122 AE ....Automatic sequence
122 AF .....Canopy release
122 AG .....Restraint positioning and protective devices
122 AH .....Seat separation
122 B ...Safety belts
123.1 .Airfoil construction
123.11 ..Inflatable
123.12 ..Corrugated panels
123.13 ..Honeycomb in skin panels
123.14 ..Hollow
123.2 ..Sparless frame construction
123.3 ...Integral frame and skin
123.4 ...Open truss/lattice construction
123.5 ..Nonmetallic filler (e.g., metal skin with foam, cork, or rubber filler)
123.6 ...Honeycomb
123.7 ..Box beam
123.8 ..Main spar
123.9 ...Tubular spar
124 ..Sectional
125 .Airship hull construction
126 .Airship skin construction
127 .Airship load attachment
128 .Airship gas cell construction and arrangement
129.1 .Details
129.2 ..Fire prevention devices
129.3 ..Windows
129.4 ..Closures
129.5 ...Door
118.3 ....Displaceable to function as ramp
129.6 ..Steps
130 ..Aerodynamic resistance reducing
131 ..Joints and connections
132 ..Skin fastening devices
133 ..Materials of construction
134 R .Ice prevention
134 A ..Flexible surfaces
134 B ..Heating fluid in airfoil
134 C ..Deicing fluid on airfoil exterior
134 D ..Electric

134 E ..Nature of surface
134 F ..Initiators and indicators
135 R .Fuel supply
135 A ..Aircraft refueling
135 B ..Flexible containers
135 C ..Fuel balancing systems
136 .Material discharging and diffusing
137.1 .Passenger or cargo loading or discharging
137.2 ..Passenger
137.3 ..Aerial cargo unloading by parachute extraction
137.4 ..Releasable, externally mounted cargo
117 A .Skin cooling
138 R **SAFETY LOWERING DEVICES**
139 .Entire aircraft
140 .Passenger compartment
141 ..Seat
142 .Parachutes
143 ..Garment attached
144 ..Aircraft element convertible to parachute
145 ..Canopy construction
146 ..Inflated bracing
147 ..Storage and release
148 ...Packs
149 ...Opening devices
150 ...Timing mechanism
151 R ..Harness
151 A ...Parchute harness connection
151 B ...Parachute load releasing
152 ..Control devices
138 A .Rotating vanes
153 R **KITES**
154 .Airplane type
155 R .Accessories
155 A ..Kite controls
153 A .Rotating

CROSS-REFERENCE ART COLLECTIONS

900 **LIGHTWEIGHT, WINGED, AIR VEHICLE (E,G,. ULTRALIGHT OR HANG GLIDER)**
901 .Having delta shaped wing
902 .Having parachute type wing
903 .Powered
904 .Miscellaneous hardware or control
905 **INFLATABLE EVACUATION SLIDE**

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or nonpatent literature from subclasses that have been reclassified have been transferred directly to the FOR Collection listed below. These classifications contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 **AIRCRAFT CONTROL (244/75 R)**
FOR 101 .Flutter prevention (244/75 A)
FOR 102 ..Fluid (244/78)
FOR 103 .Airfoil construction (244/123)
FOR 104 **SPACECRAFT (244/158 R)**
FOR 105 .Exterior surface air resistance heat control (244/158 A)
FOR 106 .Space station (244/159)
FOR 107 .Reentry vehicle (244/160)
FOR 108 ..Rendezvous and docking (244/161)
FOR 109 ..Manned (244/162)
FOR 110 ...Environmental control (244/163)
FOR 111 ..With propulsion (244/172)
FOR 112 ..With solar panel (244/173)
FOR 113 ...Spaceship control (244/176)
FOR 114 ...By vortex generator or dissipator (244/199)